Amendments to the Claims

Claim Rejections – 35 USC / 112:

Cancel all claims of record and substitute new claims 10-15.

CLAIMS

I claim:

10. A plasticating apparatus of the type wherein a rotating screw having a helical flight, known as the primary flight, being disposed within and cooperated with a inner wall of a heatable barrel having inlet and outlet openings, and whereby particles of resinous material are introduced through said inlet opening to a helical valley extending along the axis of the screw to be plasticated by said screw and advanced towards said outlet opening, the improvement of said screw comprising a feed section, transition section and metering section in succession, a significant increase in the flight pitch taking place at the taper terminus of the transition section in cooperation with a stepped change in the root that terminates either upstream or downstream of the end of one complete revolution of the flight.
11. A plasticating apparatus of claim 10 wherein a single increase in the flight pitch occurs at the taper terminus of the transition section and is about between 1.20 to 1.50 times the pitch of the generally constant transition and feed sections.
12. The apparatus of claim 10 wherein a stepped change in the angle of the root occurs in cooperation with the change in the flight, said change in the root terminates preferably about between a factor of .7-.9 or 1.1-1.3, upstream or downstream of the end of one complete revolution of the flight.
13. A plasticating apparatus wherein at least two significant increases in the flight pitch takes place in cooperation with a stepped change in the root that terminates either upstream or downstream of the end of one complete revolution of the flights.
14. The apparatus of claim 13 wherein a second change in the flight pitch occurs further upstream and is about between 1.35 to 1.50 times the original flight pitch.
15. The apparatus of claim 13 whereas a second stepped change in the root occurs in cooperation with a change in the flight pitch, said change terminates preferably about between a factor of .7-.9 or 1.1-1.3, upstream or *downstream of the end of* one complete revolution of the flight.

Claim Rejections – 35 USC / 102:

Claims 1-4 were rejected as being anticipated by Peters et al. (US 3,368,724) because it was perceived by the examiner that there was multiple increases in the flight pitch in the metering section as seen is Figures 1A and 1B. Applicant requests reconsideration and withdrawal of this objection since the specification states in column 3, line 30, that "At the inlet side of the worm (FIG. 1a), the helical ribs, 2, 2', 2" etc. are axially and peripherally offset in mutually overlapping relationship but are of the same pitch angle ". It is apparent that the drawings are misleading and hard to read because of a secondary flight that is shown within the primary flight.

Claims 1-3 were rejected as being anticipated by Rauwendaal (US 4,129,386) because of a recited increase in the flight pitch in the metering section, which is greater than the pitch in drawing Figure 3, section B. Applicant requests reconsideration and withdrawal of this objection since even-though this design has an increase in the flight pitch in the metering section, the root diameter or flight height remains constant throughout the feed and metering sections as so stated in claims # 5, and #11. This distinction clearly makes this patent different from our invention, for our invention has at least one but preferably two or more stepped root changes in the metering section that work in cooperation with an increased pitch.

Claims 8-9 were rejected as being anticipated by Brambilla (US 5,088,914) because of a recited increase in flight pitch in the metering section 32 as seen in Figure 1, that is greater than a pitch in section 26. Applicant requests reconsideration and withdrawal of this objection because it states in claim #21 that, "the primary flight has a constant step throughout the length of said screw". The terminology "step" meaning the pitch of the screw. It is apparent that the drawings in Figure 1 and Figure 2 are hard to read and the secondary flight that is shown has a greater pitch than the primary. This distinction clearly makes this patent different from our invention, for our invention has at least one but preferably two or more stepped root changes in the metering section that work in cooperation with an increased pitch.